

Alban Engine Power Systems

Consultant's Corner: Generator Specification Tips

Gen set specs: Careful consideration now saves changes later

Specification of the proper unit and supporting hardware is the first, and one of the most important, of many steps in selecting and installing an operational gen set. As environmental regulations become more stringent, sufficient time spent developing specs will ensure an installation will fit the client's needs as well as minimize change orders as the construction and installation process progresses. Every gen set application is unique, each requiring some customization. That customization process opens the door for change orders if specifications are not thorough.

List minimum functional requirements

Specifications should list minimum functional requirements rather than specific units. However, these minimum functional requirements can be based on certain genset specifications, which help Alban better identify standard items that could work in the installation. This can lower project cost and help ensure parts availability long after the unit is installed.

Coordination of tasks

Coordination between engineers is an important part of the spec development process. The gray areas of responsibilities between engineering firms, installers and end users or the interface between different suppliers are areas where items can be duplicated or forgotten.

For example, a project engineer may not specify a complete fuel transfer system, thinking that the job falls under another engineer's duties. Or both engineers may include one, and the client ends up with two fuel transfer systems.

Redundancy

Equipment redundancy is key to standby installations, but how much is too much? The cost of lost time, material or processes if standby power does not pick up the load should override project budget concerns.

Skimping on redundant systems even when data processing is involved can result in huge costs and inconvenience to a client.

Equipment sophistication

Specifying equipment that offers self-diagnostic capabilities can be valuable to operators in the event of a system malfunction. These diagnostic tools can help spot the problem quickly, and more importantly, safely.

Specify tested units

Specification of prototype-tested gen sets should be standard practice. Generally, these are factory built and feature well researched components, and offer a definite advantage over units that are put together as an after-market service. Clients are more likely to be able to acquire parts and service years after the installation is completed.

Thorough start-up testing should also be specified. A load bank test should be required, big enough to handle all loads of the particular installation. Include realistic block load tests at 0 to 50 percent and/or 50 to 75 percent of the rating on the gen set's name plate. These block loads are most commonly experienced when standby units are called into operation. Similarly, realistic block load testing is the only way to assure the unit will meet the facility's needs once the unit is installed.

Fuel usage

A spec should request maximum fuel usage rates, based on a specific fuel type at a specific operating load. Operating cost, particularly with prime power installations, can be dramatically affected in fuel usage is higher than claimed in spec sheet.

Emissions

Engine emission data is becoming more important as the Environmental Protection Agency as well as state and local regulators enforce standards to minimize air pollution.

In larger cities, regulatory agencies have used engine emissions data to restrict gen set running time. Manufacturers are developing emissions data for diesel engine, and it should be requested in the spec.

Generally, it is believed that four-cycle diesel engines burn fuel more completely and have lower emissions levels than two-cycle engines. Four-cycle engine design also allows some adjustments that can further lower emissions.